



Company/Rig: NOBLE ENERGY/CORE-TECH
WELL: WELLS RANCH AF 6-6
DECLINATION: 8.22
TD AS DRILLED: 6774'
COUNTY/STATE: WELD/COLORADO
Latitude: 40.430, Longitude: -104.369
GRID North is 0.730 Degrees East of True North
VS-Azi: 0.000 Degrees



DEPTH REFERENCE : RKB=SURFACE ELEVATION= 4677'

DRILLOG MS GYRO SURVEY CALCULATIONS

Filename: msgyro_run01-01-de_01.ut

Minimum Curvature Method

Report Date/Time: 10/13/2014 / 15:27

LAT & LONG OBTAINED BY HANDHELD GPS AT WELLHEAD

NORTH REFERENCE: GRID

HENDERSON, COLORADO

303-853-4976

Surveyor: Nick Kula

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	****
100.000	0.281	31.761	100.000	0.208	0.129	0.208	0.245	31.761	0.281
200.000	0.293	74.989	199.998	0.483	0.505	0.483	0.699	46.274	0.212
300.000	0.208	12.310	299.998	0.726	0.791	0.726	1.074	47.431	0.270
400.000	0.491	128.786	399.996	0.635	1.163	0.635	1.325	61.381	0.612
500.000	0.384	149.486	499.994	0.077	1.668	0.077	1.669	87.340	0.189
600.000	0.540	161.503	599.990	-0.658	1.987	-0.658	2.094	108.324	0.183
700.000	0.534	137.512	699.986	-1.449	2.452	-1.449	2.848	120.581	0.223
800.000	0.666	156.207	799.981	-2.325	3.002	-2.325	3.797	127.762	0.234
900.000	0.560	150.745	899.975	-3.283	3.475	-3.283	4.781	133.377	0.121
1000.000	0.657	149.349	999.969	-4.203	4.006	-4.203	5.806	136.374	0.098
1100.000	0.381	138.611	1099.965	-4.945	4.518	-4.945	6.698	137.585	0.291
1200.000	0.525	131.338	1199.962	-5.497	5.081	-5.497	7.486	137.250	0.154
1300.000	0.452	141.027	1299.958	-6.106	5.673	-6.106	8.334	137.104	0.110
1400.000	0.452	139.463	1399.955	-6.712	6.177	-6.712	9.122	137.375	0.012
1500.000	0.437	141.779	1499.952	-7.311	6.669	-7.311	9.896	137.628	0.023
1600.000	0.430	143.507	1599.949	-7.912	7.129	-7.912	10.650	137.983	0.015
1700.000	0.549	163.136	1699.946	-8.673	7.491	-8.673	11.460	139.183	0.204
1800.000	0.668	150.523	1799.940	-9.639	7.917	-9.639	12.473	140.604	0.178
1900.000	0.947	154.642	1899.930	-10.893	8.557	-10.893	13.853	141.848	0.285

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
2000.000	1.003	151.897	1999.916	-12.412	9.323	-12.412	15.524	143.087	0.072
2100.000	0.920	151.972	2099.902	-13.893	10.113	-13.893	17.184	143.948	0.082
2200.000	0.669	157.697	2199.892	-15.142	10.712	-15.142	18.548	144.723	0.263
2300.000	0.768	162.461	2299.884	-16.321	11.136	-16.321	19.758	145.695	0.116
2400.000	0.798	149.177	2399.875	-17.559	11.695	-17.559	21.097	146.336	0.184
2500.000	0.665	148.477	2499.867	-18.652	12.355	-18.652	22.373	146.480	0.133
2600.000	0.207	120.145	2599.863	-19.238	12.815	-19.238	23.115	146.332	0.494
2700.000	0.183	87.494	2699.863	-19.321	13.130	-19.321	23.360	145.801	0.112
2800.000	0.163	12.679	2799.863	-19.176	13.321	-19.176	23.349	145.213	0.211
2900.000	0.188	19.262	2899.862	-18.882	13.406	-18.882	23.157	144.626	0.032
3000.000	0.303	27.087	2999.861	-18.492	13.581	-18.492	22.943	143.705	0.120
3100.000	0.256	46.703	3099.860	-18.103	13.864	-18.103	22.802	142.553	0.106
3200.000	0.443	46.683	3199.858	-17.684	14.308	-17.684	22.748	141.024	0.186
3300.000	0.756	2.151	3299.853	-16.760	14.614	-16.760	22.237	138.913	0.539
3400.000	1.397	0.413	3399.835	-14.882	14.648	-14.882	20.881	135.455	0.642
3500.000	1.701	359.576	3499.798	-12.179	14.645	-12.179	19.048	129.746	0.305
3600.000	1.986	25.007	3599.748	-9.124	15.367	-9.124	17.872	120.700	0.858
3700.000	2.629	38.910	3699.667	-5.769	17.540	-5.769	18.465	108.206	0.848
3800.000	2.618	47.122	3799.563	-2.431	20.654	-2.431	20.797	96.712	0.376
3900.000	3.234	53.260	3899.432	0.811	24.588	0.811	24.601	88.112	0.690
4000.000	3.956	59.279	3999.235	4.260	29.814	4.260	30.117	81.868	0.814
4100.000	4.506	62.618	4098.962	7.829	36.268	7.829	37.103	77.818	0.602
4200.000	4.740	67.636	4198.637	11.208	43.577	11.208	44.995	75.576	0.467
4300.000	4.619	68.054	4298.304	14.285	51.133	14.285	53.091	74.391	0.126
4400.000	4.654	70.558	4397.977	17.140	58.693	17.140	61.144	73.720	0.205
4500.000	5.488	73.935	4497.585	19.814	67.113	19.814	69.977	73.552	0.885
4600.000	6.373	72.955	4597.049	22.764	77.014	22.764	80.308	73.533	0.891
4700.000	6.481	72.595	4696.420	26.079	87.706	26.079	91.501	73.440	0.115
4800.000	5.636	76.782	4795.861	28.890	97.872	28.890	102.047	73.554	0.953
4900.000	4.778	82.033	4895.448	30.590	106.778	30.590	111.073	74.014	0.981
5000.000	3.941	83.492	4995.158	31.557	114.317	31.557	118.592	74.568	0.845
5100.000	3.009	84.073	5094.973	32.217	120.342	32.217	124.580	75.012	0.932
5200.000	2.165	83.824	5194.870	32.692	124.830	32.692	129.040	75.325	0.844
5300.000	1.575	86.974	5294.816	32.967	128.081	32.967	132.255	75.566	0.599
5400.000	1.597	88.967	5394.778	33.065	130.846	33.065	134.959	75.818	0.059
5500.000	1.607	87.157	5494.739	33.160	133.639	33.160	137.692	76.065	0.052
5600.000	1.658	74.085	5594.699	33.626	136.431	33.626	140.514	76.154	0.375
5700.000	1.746	84.957	5694.655	34.157	139.340	34.157	143.466	76.227	0.334
5800.000	1.076	113.373	5794.625	33.918	141.720	33.918	145.722	76.540	0.950
5900.000	1.233	143.854	5894.606	32.677	143.217	32.677	146.897	77.147	0.626

Measured Depth FT	Incl Angle Deg	Drift Direction Deg	TVD FT	+N/-S FT	+E/-W FT	Vertical Section FT	Closure Distance FT	Closure Direction Deg	Dogleg Severity Deg/100
6000.000	1.117	151.151	5994.585	30.954	144.322	30.954	147.604	77.895	0.189
6100.000	0.953	152.668	6094.568	29.362	145.174	29.362	148.113	78.566	0.167
6200.000	0.848	170.633	6194.556	27.893	145.676	27.893	148.322	79.161	0.300
6300.000	0.607	192.237	6294.548	26.644	145.684	26.644	148.101	79.636	0.361
6400.000	0.962	239.389	6394.540	25.699	144.849	25.699	147.112	79.939	0.707
6500.000	1.948	236.148	6494.506	24.325	142.716	24.325	144.774	80.327	0.989